

M U C O U S C O L I T I S .

Being a Thesis offered for the Degree of Doctor
of Medicine of Edinburgh University.

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Mucous Colitis is a disease which has been recognised for a very long time, though until recently, it has not received much attention in this country. This designation is the one by which the affection is most commonly known, indicating not only the nature but also the seat of the disease; but the nomenclature is a most extensive one and is almost unsurpassed in this respect by any other morbid condition. Among the various synonyms are:- Tubular Diarrhoea, Membranous Enteritis or Colitis, Desquamative Enteritis, Chronic Pseudo-Membranous Gastro-Enteritis, Pellicular Enteritis (Sir Jas. Simpson) Chronic Muco-Colitis, Mucous Disease of the Colon, Colonic Dyspepsia, Mucous Colic etc. It is full of interest for many reasons, among which may be mentioned the difficulty in ascribing to it its proper position in the classification of Intestinal diseases, the controversy that its etiology, pathology and treatment have caused among most noted physicians, and its great tendency to chronicity and to relapses without a fatal termination. It is interesting, too, from the fact that there is no disease connected with any other organ in the body, which is perfectly analogous to Mucous Colitis. The nearest approach to it, perhaps, is Renal Colic, which is attended by the passage of casts of the Ureter/

Ureter (Ureteritis Membranacea.) Fenwick of New Zealand¹ has related a case in which a membranous cast of the Gall Bladder and duct produced attacks of Biliary Colic.

The disease has been studied much more particularly in America and on the Continent than in this country, where it is usually spoken of as a rare disease. But, in all probability, it is not so rare as we have hitherto considered it. During nine years, I have observed quite a number of typically developed cases, the history of some of which I append to this thesis. Its supposed rarity is very possibly due in many instances to the fact that it is overlooked by the physician, and still oftener by the patient, owing to primitive or imperfect sanitary arrangements in rural districts especially, or from lack of observation of the faeces: and not infrequently, there is no doubt that concomitant symptoms have assumed such an importance as to mask the original disease and both patient and physician are quite unaware of its presence.

In studying this disease I shall describe in detail and in the following sequence:-

1. The symptoms with a short sketch of the history of a few cases.
2. The pathology, including the results of microscopical examination, and the examination of Blood Films.
3. Etiology.
4. Diagnosis.
5. Prognosis.
6. Treatment.

1. THE SYMPTOMS:

In order to gain an accurate knowledge of the complex symptoms and signs of this disease, it is necessary to adopt some form of classification, and I would accordingly take them up in the following order:-

- i. The Cardinal Symptoms:-
 1. Constipation.
 2. Passage of Muco membranes.
 3. Pain.
- ii. The Physical Signs - the state of the abdominal viscera.
- iii. Associated conditions and accessory symptoms.
- iv. Comparison of the Clinical Symptoms occurring, (a) in the child, and (b) in the adult.
- v. History of some cases observed by myself.

One must at the outset recognise the fact that the disease occurs in all degrees of severity, sometimes so mild that practically the only feature is the passage of membranes, and at other times, or in other cases, so severe and attended with such constitutional disturbance as to suggest the possible existence of some very grave malady. Before discussing the symptoms in detail, it may be well to give/

give a brief clinical sketch of a typical case of the disease. The patient is usually from twenty to forty years of age, and more commonly a female. She complains that for some time she has suffered from indigestion, usually an hour or two after food, that her appetite is poor, and the bowels constipated, or sometimes loose. More or less constantly, she has discomfort, if not actual pain, appreciably increased and sometimes griping in her abdomen a while after her meals; and, if she is asked to locate the pain, in many cases she points vaguely to the region of the colon. At times, she has had violent colic pains with great tenderness all over the abdomen and profound nausea, even vomiting. If she has taken an intelligent interest in her case, she will also tell of the passage of mucus or "skins" from the bowel, which she may have mistaken for worms, etc. In addition to this, she usually is depressed, and complains much of a constant feeling of lassitude, and of an unaccountable vexation of spirit, which is only relieved by copious lachrymation. In all probability, she has suffered like this for a considerable time and has been going about, or trying to do her work, but finally has felt that her energy is not able to hold out any longer. Such is/

is the usual history elicited from a patient suffering from Mucous Colitis, and we must now more closely examine the symptoms in detail.

i. The Cardinal Symptoms:

1. Constipation is an invariable symptom and has existed from the very commencement of the disease and in many cases, from the earliest years of childhood. The constipation is of a peculiarly obstinate type, sometimes several days passing without evacuation of the bowels, and then only by the use of purgatives or enemata. In some mild cases, there are intervals when the bowels appear to act more regularly, and there are spasmodic attacks of constipation during which the disease is in evidence. But, in fully developed cases, the constipation is persistent; artificial means for obtaining relief are constantly resorted to, and in many cases, very unsuitable means, which temporarily give relief, but ultimately exaggerate the disease. Some patients have intermittent attacks of diarrhoea, but this is false and not true diarrhoea, for appropriate treatment removes it and the constipation again returns; and, if the diarrhoeic motions are carefully examined, they are seen to contain in the fluid faeces, scybalous masses large or small. So far as I have observed/

observed, only one author, Langenhagen², opposes the statement that constipation is a constant feature. He states that he has noticed a permanent true diarrhoea in five per cent. of his cases, in which there was no previous or subsequent constipation, and in which all the other characteristics of Mucous Colitis were present. Apart from these few cases, all observations go to prove that, though other symptoms may be absent, constipation is constant. The appearance of the faeces varies. They are usually hard and dry, sometimes in the form of balls, or, as I have often observed, like "sheeps' droppings". At times, they have become moulded to the intestine, adherent to the mucosa, and their expulsion may be accompanied by drops of blood, or they may be streaked with blood, from little abrasions in the mucous membrane which they cause by their separation. Occasionally, they are small in calibre or ribbonshaped, apparently due to spasmodic contraction of a part of the intestine. They may, or may not, be covered with mucus or enveloped in membrane. Faecal matter is sometimes found in the lumen of the membranous cast, and sometimes between the laminae of which the wall may be composed. Often the faeces are seen to contain undigested particles of food.

2. Passage of Mucus or Membranes:

This is the characteristic symptom or sign of the disease, and the one from which the disease has derived its common nomenclature. The character of the mucus and its macroscopic and microscopic appearances are fully described in the paragraphs devoted to Pathology, and need not be referred to here. The mucus or membranes may be passed alone or mixed with faeces, or mucus and faeces may be passed at the same time but not mixed, in which case the faeces usually precede the mucus ³(Shingleton-Smith). The mucus may be pretty constant, appearing more or less daily, and with every motion; or the expulsion of mucus may take place intermittently, often in large masses or casts, attended with much colic, and these attacks may last even for a few days, after which, there is an amelioration of the symptoms. In one of my cases, the mucus oozed from the anus, almost without the patient's knowledge. The quantity, too, is variable: Sometimes, in almost imperceptible amount, at other times in much greater abundance.

The loose, glairy mucus, which is evacuated comparatively easily, is supposed to be a fresh production, whereas the more solid form which is solidified and moulded to its surroundings, or in strands or/

or tough threads, is believed to be older, having been secreted some time previously, and excreted usually with considerable colic pain, probably as the result of violent spasm of the intestine at the part where it was attached, and also by the renewed secretion of fresh mucus there, which has a tendency to loosen its attachment ⁴(Gaston, Lyon and von Noorden.)

3. Pain is, in the great majority of cases, a constant symptom; but, in a comparatively small proportion, it is absent. In one of my patients, who periodically passed typical membranous casts, there was practically no pain either preceding or succeeding the passage of a cast, or in the intervals. We recognise that this symptom presents itself in two different types:-

(a) Habitual pains.

(b) Severe paroxysmal attacks of pain; which we shall consider separately.

(a) Habitual pains: These again, are of variable character. Sometimes, the pain might better be described as discomfort or general soreness, more or less continuous; at other times, more severe, shooting or burning. One patient told me he could best describe the feeling "as if hot lead/

lead were passing along the bowel." In other cases, the sensation is more like a twisting or pulling of the intestine. The situation of the pain varies. It may be at any part of the colon, or along its whole extent; but most usually, I have found it in the region of the Sigmoid Flexure, along the transverse colon, or in the Right Iliac Fossa. I have also observed very distressing pain in the region of the sacrum. At certain times, the pain is aggravated, almost amounting to colic attacks, especially about two or three hours after food - which is apt to make one diagnose the cause as one of dyspepsia or gastralgia - or during the night. Such an attack is usually followed by the expulsion of a quantity of mucus. Several of these attacks may occur in the course of twenty-four hours, and there is no doubt that their occurrence some time after a meal is not merely a coincidence, but is often due to the passage of products of digestion, or some undigested food. If one carefully observes a patient during such an attack, one is at once struck with his appearance. He is seen to get pale, and his features become pinched and contracted, and this may be repeated once or twice in fairly rapid succession, followed by considerable tenesmus/

tenesmus, until finally, the bowel expels a quantity of glairy mucus, when temporary relief is afforded and the normal physiognomy of the patient returns. But apart from these habitual pains, we fairly often meet with

(b) Severe Paroxysmal attacks:

These may be due to change of diet, worry, or to inattention to the bowels, which has resulted in a very pronounced constipation. Such paroxysms may come on at very variable intervals, once or twice during a month, or perhaps only a few times in a year. Sometimes, they do not occur at all. Gaston-Lyon⁵ has observed them coinciding with the menstrual periods in a woman. The length of the attack likewise varies, persisting for two or three days, or for as many weeks. We notice that at such times not only is the pain markedly increased, but there is a general exacerbation of all the phenomena of the disease. During a paroxysm, the patient suffers intense agony, often feeling as if the bowels were on fire, remissions of a few hours sometimes occurring, but only to be succeeded by a renewal of the acute suffering. The patient is confined to bed, and his general aspect and condition of the abdomen are characteristic. As in the less severe attacks/

tacks mentioned above, the face is pale and the features drawn and pinched, the thighs are flexed on the abdomen, the pulse is small and the breathing is rapid. Vomiting may occur. The abdomen is distended and painful. The slightest pressure, even the weight of the bed clothes, is intolerable. The least movement of the patient on his bed increases the agony. There is not only cutaneous hyperaesthesia, but intestinal alterations are very evident. There are undoubtedly irregular spasmodic contractions of the bowel, and at times spasmodic dilatation, to which I shall refer more fully when I come to describe the physical signs. On one or two occasions, I have seen these paroxysmal attacks in a woman who, when the pain was at its height, became almost cataleptic, her whole body arched and rigid, and her fingers over-extended and immovable; and on the right side of the abdomen, a large swelling like a ballooning of the lower half of the ascending colon, which I believe was due to spasmodic dilatation of that part of the intestine. All of these symptoms recurring frequently during two or three days, passed off with the expulsion of balls and strands of mucus, and usually very little or no faeces. Large hypodermic injections of morphia alone afforded any relief.

11. PHYSICAL SIGNS.

(a) General aspect of the Patient:- If the case is a mild one, there may be nothing characteristic, but in a fully developed case, we notice that the patient has an anxious, sad expression with somewhat sunken eyes, and a yellowish complexion betokening, in all probability, autointoxication from defective elimination of toxic products in the intestine. The patient is thin, sometimes actually emaciated, and in most severe cases, cachectic.

(b) The tongue is usually pale and furred, often white at the base and red along the borders. At other times, it has simply the appearance of that of an ordinary dyspeptic.

(c) The Examination of the Abdomen:-
The abdominal parietes are slack and flaccid, causing the belly to be retracted and depressed. Both the abdominal and intestinal walls are ordinarily very much relaxed, and give the feeling to the palpating hand like that of putty. Langenhagen⁶ describes it as if one were feeling an old rag or a piece of soft rumpled paper, and he calls it "sensation de l'intestin-chiffon". In milder cases, the abdominal walls still have a certain power of resistance/

sistance; and, in other cases where there is much flatulence, the belly may be stretched owing to the distension of the large intestine. Where the wall is flaccid, it is quite easy to feel the vertebral column by depressing the hand, and the pulsating aorta. But we must recognise the fact that the state of the abdomen is not always the same in one individual; for, during an attack of colic or spasm, palpation reveals at certain places, very characteristic features. Very often, the transverse colon is found in a state of spasmodic contraction, and feels like a cord of varying thickness (Langenhagen) (corde colique.) The Sigmoid Flexure is often in this state, whence the ribbonlike condition of the stools on certain occasions. Dr Norman Bridge⁷ refers to "the tetanic rigidity of the colon, which often impedes the movement of the contents downwards, often continuing for hours and even days, and easily located on the descending colon and sigmoid." But on the other hand, intestinal spasm does not always induce contraction. As I have observed markedly in one case, to which I have already referred, it may cause dilatation of the segment of the intestine so affected. Geoffrey and Mannaberg⁸ especially refer to this most interesting phenomenon. Mannaberg speaks of having seen the transverse colon and/

and the descending colon in this condition - "das aussergewöhnlich stark tetanisch gespannte Colon transversum", "das Krampfhaft gespannte colon descendens"; but it may be observed in any part of the colon, my own case illustrating this dilatation in the ascending colon, where it may cause considerable difficulty in excluding a diagnosis of appendicitis. Percussion, however, gives a resonant and not a dull note. Palpation is very painful. There are still other cases where, without spasm, one gets dilatation, especially in the caecum. Here, according to Langenhagen⁹, one can quite distinctly make out the splashing in the caecum ("Clapotage") analogous to gastric splashing, but quite different from the gurgling ("gargonillement") of the caecum, the two sounds being elicited by different methods of palpation.

By rectal examination, I have frequently observed a ballooning of the rectum. Though I have not noticed any references to this in any literature on the subject, I am convinced from many careful observations that its presence is very frequent.

The examination of the other abdominal viscera reveals abnormalities in long standing cases of the disease. Dilatation of the stomach is fairly common./

mon. Langenhagen says that fifty per cent. of his cases exhibited this condition, and ptosis of the stomach, he asserts, is frequent too. Confusion may arise in distinguishing between a dilated stomach and a dilated transverse colon. One may elicit splashing sounds in both. Careful palation and percussion aided by the stethoscope, eventually clear up the difficulty. Insufflation of the stomach is scarcely called for, even though doubt still exists.

The state of the liver is worthy of attention. It may be either contracted or enlarged, but more commonly the former. When enlarged, it is palpable below the costal margin and painful. (Langenhagen and Mathieu).

The Right Kidney is sometimes ptosed or movable.¹⁰ It may be found, according to Gaston-Lyon, even in the neighbourhood of the umbilicus. The left is always in its normal position, except in a very few cases, when both of these organs are displaced.

Of course, it must be clearly understood that we do not necessarily find all these physical signs present, when examining the abdomen of a patient suffering from Mucous Colitis. Invariably, we find cutaneous hyperaesthesia, and in many cases, there is nothing more, except perhaps the intestinal conditions in these instances, where spasms exist. In more/

more advanced cases, we may assuredly find a degree of Enteroptosis. Indeed, some authorities hold that enteroptosis is always present, more or less, in Mucous Colitis, except in the very mild cases of the disease.

iii. ACCESSORY SYMPTOMS AND ASSOCIATED CONDITIONS:

Under this heading, we shall discuss the various morbid alterations in the different systems.

1. The Alimentary System: In the mouth, according to Langenhagen¹¹ and Malibran,¹² but unnoticed by most observers, Stomatitis and Inflammation of the gums may occur. Ptyalism and salivation are, according to them, also present. The former goes so far as to say that Buccal Thrush is particularly common, but certainly, I have not seen it even in pronounced cases.

Gastric troubles are, however, much more frequent. Indeed, it is often for these, that the patient seeks relief. Careful interrogation usually elicits the fact that at some time or other in the course of the disease, or before the typical manifestations were present or at least, noticed, indigestion was complained of. Loss of appetite, pain/

pain after taking food, flatulence, and heartburn are among the common subjective symptoms. Chemical examination of the stomach contents shows no constant condition. There may be excessive or decreased secretion of Hydrochloric Acid. Gastric troubles may precede the onset of the intestinal mischief, though in many cases, the fact is plain that the discharge of membranes has been going on for some time before the patient became cognisant of them. Dilatation of the stomach has been already referred to. With regard to the Liver, the alteration in the size of that organ has been previously described. The biliary functions may also be deranged. I have frequently observed decoloration of the faeces - almost pipeclay motions - without any jaundice; and on the other hand, intense dark green discoloration of the faeces, showing that the bile may be secreted in very small quantity or in great abundance. One must, of course, remember that bismuth or a milk diet has an effect in staining or decolorising the stools respectively.

The Spleen shows little alteration, though I have seen it enlarged, which seems to me to indicate a degree of autointoxication.

The Intestinal Complications are various and of much interest. Haemorrhage, apart from haemorrhoids/

hoids, I have not seen often, except in a case following dysentery. Some authorities - Hale, White, Potain, etc., - say it is of frequent occurrence, and in large quantities sometimes, attended with shivering and pain, which precedes the expulsion of blood, mucus and faeces or blood alone. The haemorrhage may result

- (a) from abrasions of the intestine.
- (b) from congestive attacks especially in arthritic subjects, or,
- (c) according to Potain¹³ from vasomotor congestion of the mucous membrane.

I have at least seen no case recorded where haemorrhage proved fatal, or even had serious results. Haemorrhoids are quite common, but doubtless the constipation accounts for these. Prolapsus Ani and Fissure of the Anus are also to be met with. Among the most interesting conditions associated with Mucous Colitis, is Intestinal Lithiasis. It is beyond the limits of this paper to discuss at all exhaustively, the subject of Intestinal Sand, but it is a phenomenon of such interest as to demand at least a passing reference. Intestinal Lithiasis has not been found, I think, apart from Mucous Colitis. (Michael Foster,¹⁴ Langenhagen,¹⁵ Mathieu/

Mathieu,¹⁶ Chevalier,¹⁷); but whether this is a mere coincidence or an actual relationship is not yet decided. There is no doubt that the arthritic diathesis favours the production of "sand", and it is now pretty generally conceded that the same diathesis plays an important part in the causation of Mucous Colitis. Records of cases in which the two morbid phenomena of Lithiasis and Mucous Colitis appear together, are quite common. Oddo¹⁸ describes an interesting case, in which a woman of arthritic temperament, passed membranous casts of the intestine and intestinal sand. Dieulafoy¹⁹ refers to the frequent association of Mucous Colitis with Intestinal Lithiasis, and the connection of both with gouty manifestations and he mentions that in lithiasis, the discovery of pseudomembranes confirms the diagnosis. Westphalen²⁰ gives two cases of intestinal sand, both associated with Mucous Colitis: and a similar history of a case is given by Dr C. H. Bedford.²¹ Gaston-Lyon²² thinks that migration of the sand determines sometimes the painful crises of Mucous Colitis and that particular intensity of the painful crisis is an indication of Lithiasis.

There is no doubt that in Mucous Colitis, we have/

have conditions present which are favourable to the concretions. "There is the exaggerated secretion of the mucus, which forms the nucleus of the larger concretions: the constipation causes stagnation of the mucous products and accumulation of the limestone salts by intense epithelial desquamation of the mucous membrane of the intestine." (Langenhagen²³).

Another subject of controversy is the relationship between Mucous Colitis and Appendicitis. The occurrence of appendicitis in the course of Mucous Colitis is rare, and the majority of authors conclude that there is no connection between these two diseases (Dieulafoy, Potain, Glenard, Ewald²⁴.) Langenhagen had only a few cases of appendicitis among 1,200 cases of Mucous Colitis and, where surgical interference was necessary, removal of the appendix did not modify to any appreciable extent the other disease. Some writers, on the other hand, assert a relationship. Kleckiego²⁵ says, that Mucous Colitis is a cause of Appendicitis. Schauman²⁶ considers that there is a distinct connection between the nervous diathesis and Appendicitis, and that accompanying the appendicitis, there is frequently a Mucous Colitis which must/

must be regarded as nervous in origin. Albert Robin, Vorbe, Hutinel, Gaston-Lyon²⁷ say that in some cases there is a connection between the two diseases, Lyon holding that at least, Mucous Colitis predisposes to Appendicitis. Very probably, some cases of Appendicitis in this connection are not real: that, in short, there has been an error in diagnosis. A strong argument against any causal relationship is that at operations for appendicitis, which are so common, Mucous Colitis is rarely in evidence, and the result of post mortem examination points to the same conclusion. Again, as Dieulafoy remarks, if the complication of Appendicitis were a frequent one, it should be a matter of almost daily experience at a spa like Plombieres, where however, medical men rarely see it.

Still, the fact remains that occasionally, whether it is a mere coincidence or not, the two diseases are found in association, and, for that reason, when in a case of Mucous Colitis, there are indications pointing to appendicitis, the presence of membranous casts should not tempt the physician to ignore the possibility of both diseases being present.

2. Circulatory System:

Disorders of circulation are not by any means invariably manifested. They are most common in patients of nervous temperament or in those who have developed neurasthenia. They are really reflex disturbances through the vagus or sympathetic system, the reflexes going from the irritated intestine. Some complain of palpitation after food; others, of attacks comparable to Angina Pectoris. Tachycardia, irregularity and intermittency of the cardiac rhythm have been frequently noted. During an acute paroxysmal attack, the pulse rate may be increased to 120 or 130. Potain and Langenhagen say they have noticed Tricuspid incompetence from functional dilatation of the heart. Pallor or flushings after food are the most common vasomotor disturbances. Sometimes epistaxis has been observed. It is important to recognise that these troubles are but accidents in the course of the disease, that they are removed by appropriate treatment, and are not symptomatic of true cardiac affections.

3. Respiratory System:

Respiratory troubles, too, are reflex disturbances. Attacks simulating Asthma, Spasmodic dyspnoea and coryza may occur, especially in arthritic subjects.

4. Nervous System:

In mild cases, the nervous system presents no abnormalities, and even in some pronounced cases - as in one of my own patients - there may be no striking departure from the normal. But, in the majority of cases, where the disease has been established for a considerable time, the nervous system exhibits an important group of symptoms, and plays a prominent part in the clinical features of the disease. Depression, neurasthenia, and hypochondriasis are to be met with constantly. A patient, who hitherto was bright and cheerful, becomes morose and sad, and takes no delight in any topic of conversation except his own misery. This, of course, is specially true of people who were nervous before. When Mucous Colitis becomes thoroughly established, they develop into profound hypochondriacs. This state of matters, with the circulatory and respiratory troubles already mentioned, is doubtless a reflex disturbance. There is much controversy as to whether the nervous or the intestinal affection is the primitive one, but personal observations convince me that the latter takes precedence. Langenhagen's statistics²⁸ point greatly to the truth of this assertion, and a/

a further argument is found in the fact that, with the improvement of the intestinal symptoms, the nervous phenomena show a proportionate amelioration. The effects of treatment, too, support this theory, for remedies employed to overcome the nervous manifestations fail to improve the intestinal condition. Other nervous complications, as temporary aphasia and amblyopia, amaurosis, tiunitus aurium, etc., have been recorded²⁹; and chorea and epilepsy in children.³⁰

5. Integumentary System:

The only concomitant skin affection I have observed, is urticaria; but Edwards³¹ and Lyon³² mention attacks of Herpes, boils and carbuncles in the course of Mucous Colitis. The cutaneous hyperaesthesia of the abdomen is a matter of common observation, and is well known to all observers.

6. Genito-Urinary System:

Amenorrhoea, dysmenorrhoea and leucorrhoea are all quite commonly observed in the course of Mucous Colitis; but, though several authorities, as Monat, Ozeune, Pichevin, Monod, etc., ascribe to uterine diseases a causal relationship, it is more likely that they are concomitants and coincident affections. Fibroid tumours, prolapsus uteri, flexions/

flexions and versions of the uterus have all been observed, and it is quite conceivable that these offer mechanical resistance to movement of the faeces through the intestine, and so favour constipation. The authors I have just mentioned ascribe to these affections of the genital organs, more than a mechanical effect. They aver that, through the Anastomosis of the lymphatics of the vagina and rectum, infectious propagation takes place from one organ to the other; but this, in the light of our present knowledge, remains quite unconfirmed. And we must further take into account in discussing uterine diseases, as a cause of Mucous Colitis, that men in considerable proportion and children, though in much smaller proportion, also suffer from Mucous Colitis, that many women suffer from the intestinal affection, who do not have any pathological condition of the uterus or adnexae, and vice versa; and that, in these cases where these diseases do coexist, a careful history reveals the fact that often the intestinal affection precedes the uterine. Findlay³³ speaks of the occurrence of Mucous Colitis along with membranous dysmenorrhoea and a similar case is recorded in the British Medical Journal:³⁴ but this can be nothing/

thing else than a coincidence, the pathology of these two diseases being entirely different. As to urinary troubles, observers have pointed out the occurrence in Mucous Colitis of vesical tenesmus, dysuria, and various disturbances in micturition; but it is a matter of common observation that there is a sympathetic relationship between the intestine and bladder.

Having described at some length the symptomatology of this disease, it is necessary to point out that, in by no means all cases, do we find all these phenomena exhibited, or even a majority of them. There are mild and severe forms of the disease. In the milder cases, constipation and the passage of membranes may be the only symptoms, and these patients may remain in this condition without any grave development for a long time, or, with neglected constipation and inattention to the general laws of health and dietetic principles, they may pass in ^{to} a more advanced phase of the disease, in which are exhibited any or all of those concomitant conditions and accessory symptoms, such as enteroptosis, nephroptosis and the neurasthenic condition developed or aggravated to a very extreme degree, and in which those acute paroxysmal attacks periodically recur. Patients suffering from the severe/

severe forms of Mucous Colitis become emaciated and feeble on this account, and because they restrict their diet, excluding one after another of the necessaries of life, until the amount of nourishment they take is insufficient to sustain them physically or mentally.

iv. COMPARISON OF THE CLINICAL SYMPTOMS occurring

- (a) in the child, and
- (b) in the adult.

We must exclude those cases of Acute Colitis so common in children, which are characterised by diarrhoea, mucus and blood in the stools, but without casts or tubes of mucus, and in which are to be observed the general symptoms of toxic infection. One must certainly admit that the greater number of cases of Colitis in children are of this nature, but apart from these, Mucous Colitis does occur in children, and it is noticed that the tendency is for the course to be more acute, or for the acute attacks to repeat themselves frequently, and to be of a long duration. In children, as in adults, we find the arthritic or neuro-arthritic diathesis playing its part, the hereditary taint being/

being a marked feature. I think that proportionately more often in children than in adults do we find Mucous Colitis succeeding an acute colitis, though the disease may likewise be insidious - chronic from the first; careful observation revealing the fact that in the cases I have attended, constipation has been very obstinate and pronounced, even from birth. Some authorities, as Comby³⁵ hold that the forms of Mucous Colitis seen in children are varieties of the Mucous Colitis as seen in the adult, while others, as Marfan³⁶ say that they are entirely distinct. The symptoms and physical signs of the disease in children are for the most part analogous to those in the adult. Acute febrile attacks, as I have just mentioned, are more common in children, and may last for a long period, and emaciation is more rapidly produced; and, when the disease is not arrested, but progresses to youth or adult age, it is very difficult to cure.

I here append the records of five cases among those I have observed during the past nine years, each of them showing special features of interest:-

1. C.W.O., a soldier, 47 years of age, of gouty diathesis. Acute dysentery in 1879-80 (Kabul war) and in 1882-83 (Egyptian War). Since 1883, chronic dysenteric attacks occasionally. Since 1893, chronic mucous discharge more or less always present. Membranous casts were first noticed in 1900, sometimes balls of mucous the size of a walnut, at other times long strings of membrane, and frequently membranous casts, even two feet in length. Patient complained of pain more or less constantly in the abdomen, and pain in the sacrum. When an attack came on, the pain in the sacrum felt "as if there were red hot coal in it", and he had a feeling as "if the back were broken". Sometimes, even as often as once a fortnight, there were very violent paroxysmal attacks of pain, lasting from a few hours to one and a half or two days, and passing off with a copious evacuation of mucus in mass or cast. Sometimes, toward the end of one of these attacks, mucus leaked out of the anus. Pain was felt at different times in different parts of the colon, but as a rule, it was worse in the caecal region and transverse colon. There was often much irritation in the region of the Sigmoid Flexure, and at times, he felt "as if hot lead were passing along the bowel." There was no blood in the stools as a rule. Haemorrhoids/

orrhoids were present, but only slight, though he often complained of burning heat in the rectum, especially before defaecation. The casts, macroscopically and microscopically presented the usual features, the bacilli coli being present in enormous quantities. Examination of a blood film gave the following result:- Poly:, 51.5; Mono:, 9; Lymphocytes, 32.5; Eosino:, 7. There were no neurotic symptoms whatsoever, beyond depression at times, especially after acute attacks.

Treatment: In acute attacks, rest in bed, milk, plain or peptonised, hot water enemata, Belladonna and Chlorodyne for spasm, and occasionally hypodermic injections of morphia. In intervals, bland, non-irritating diet. Potatoes in this case, had to be strictly avoided. They invariably caused an acute exacerbation. Castor Oil could not be taken, and Apenta water was used (half wineglassful in hot water). Enemata of saline solution were regularly employed and were of much service, and occasionally injections of Silver Nitrate, Hazeline or Alum. Internally, thymol was tried, but had no effect. Salol and Bismuth gave much better results. The High Frequency current was tried twice for three weeks at a time, taking a dose as much as 420 milliamperes/

amperes of current, but improvement from this, was only temporary. During the last eighteen months, careful attention has been given to diet and to regulation of the bowels, enemata being used regularly and Apenta water every morning. Fresh Bael Fruit (imported) has been partaken of freely. The patient has now left the district, but on 24th March, he wrote to me that with this treatment, he had been much improved, the excreted mucus being much less in quantity, acute exacerbations much less frequent, the constant abdominal discomfort very considerably ameliorated, and he had seen no casts for some time.

2. E.L.S., aged 60 years, fairly well developed woman, married, has had nine children, no miscarriage. She is of a most distinctly neuro-arthritic temperament, and both her parents were gouty. She has suffered from asthma for many years. About fifteen years ago, she passed a small phosphatic calculus, and she has had several attacks of cystitis. She has had no uterine or other genital troubles. As far back as she can remember, her bowels have been constipated, but much more so since the casts appeared. Her general neurotic condition has likewise been much aggravated. Four years ago, she had a/

a very severe attack of gastro-enteritis, from which she made a good, though a slow, recovery. On 23rd March, 1899, she first passed a typical membranous cast, about twelve inches long. Casts were expelled subsequently about every three weeks or oftener, and varied in length from three to nine inches. Sometimes faeces were found inside the casts, and casts were usually expelled before the faeces. The patient could usually tell, before examining the motion, that a cast had been passed, by the peculiar pungent odour, and she frequently drew my attention to this. Sometimes there was a good deal of discomfort at the anus when a cast was passed and for half an hour afterwards, but never any acute pain. She never suffered from pain in the intervals, and she has had no paroxysmal attacks. The faeces were usually accompanied by a good deal of mucous discharge. It is interesting to note that her nephew and niece both suffered from Mucous Colitis. Microscopically, the casts and mucus showed the usual appearances. Examination of a blood film - on several occasions - showed increase of mononuclears and eosinophils, and a decreased proportion of multinuclears. The mononuclears ranged from 9% to 17%, and the eosinophils were never lower than 5%. Her present condition is/

is much improved. No cast has been passed since July 1902, and for some months previously, they were much less frequent than formerly. The motions rarely now contain any mucus. Her neurotic condition has also undergone a satisfactory change, and her bowels act more regularly. She has been treated by a bland non-irritating dietary, and intestinal irrigation very regularly performed (but not for many months past.) Castor Oil was used as a laxative, or salines in small doses, when the stomach began to resent castor oil. Salol was prescribed in 5 gr. doses twice daily, and petroleum for some time in tablespoonful doses after meals. If the bowels now become constipated, she takes nightly, a short course of bi-palatinoids containing small doses of iron, cascara and belladonna.

3. A.E., female, gouty, 42 years of age, has suffered from Mucous Colitis for upwards of 12 years. She also has Prolapse of the Rectum, Haemorrhoids and Prolapsus Uteri. The Colitis first began in the strawberry season, and was always worse for one or two years, during successive strawberry seasons. She ate strawberries very freely. After a year or two, symptoms were constantly present, with frequent acute exacerbations. She always had "a weary sort of discomfort rather than pain", in her bowels, and always/

always worse after eating fruit or vegetables. Acute attacks came on about once a month, frequently at menstrual periods, and always ending with the passage of balls of mucus or casts. Casts varied in length from 3 to 6 inches. Mucus, until a year ago, was passed daily, sometimes without faeces, when the pain was very intense for a little time before and a longer period afterwards. Various members of her family (one brother and one sister) suffer from Mucous Colitis. I saw her first, about two years ago and prescribed bland dietetic treatment, castor oil as a purgative, intestinal irrigation and petroleum after meals. Her condition (17th March, 1903) is much improved. During the last twelve months, she has had only two acute attacks, and only three or four casts have been passed with much less pain. The quantity of mucus in the stools is greatly decreased, and the nervous depression from which she suffered is also markedly improved.

4. M.S., female, aged 38 years, married, five children, has been "very nervous" for the last few years, and has complained of much "slime" appearing in her motions. Four years ago, she had a severe attack of Typhoid Fever, since which she suffered much abdominal/

abdominal pain, more especially in the iliac fossae. The bowels were usually constipated, often several days passing without their evacuation, and then only very inefficiently. About two years ago, I was called to see her, and found her suffering intense agony. The abdomen was distended, and very tender on the right side. There was a large swelling resonant on percussion and corresponding to the lower part of the ascending colon, which I believe, was in a state of spasmodic dilatation. A hot water enema, hot laudanum fomentations and a hypodermic of morphia and atropine, gave some relief, though the bowels were not evacuated. Some hours afterwards, I administered another enema, and a large quantity of mucus was expelled, but little faeces. Enemata were continued for a few days, night and morning, and much mucus was got rid of in this way. Sometimes casts were passed, and at other times, twisted strands of mucus. When in an acute attack of pain, she became rigid and almost cataleptic; the temperature never rose above 99° F. These attacks used to recur about once a month, and in the intervals the old discomfort in one or other of the iliac fossae returned, and sometimes along the transverse colon. Under treatment by bland non-irritating diet, intestinal irrigations, castor/

castor oil as laxative, and bismuth mixture without suspension in gum, she recovered and remained well for many months, but a severe relapse occurred with one of her acute attacks accompanied by the same symptoms. After this had passed off, I resumed the irrigations, dietetic treatment and petroleum thrice daily after meals. For a few months, she has also had injections of Grape Juice(5%) and there has been no return of the symptoms; the bowels act without the aid of laxatives; her nervous condition is greatly better, and there has been no mucus in the stools for some time. Examination of blood film in this case also showed increase of mononuclears and eosinophils.

5. A.C., boy, 4 years of age, father gouty, previously a healthy child. On 4th February 1897, he became ill with symptoms of gastric disturbance. The bowels were absolutely confined, and symptoms of acute obstruction set in, with persistent vomiting and violent pain all over the abdomen. Local applications failed to give any relief, and medicines administered internally were immediately rejected. A small hypodermic of morphia was injected, and relief was obtained for about twenty-four hours, when, with/

with a large enema of hot water, a cast looking like a huge worm was expelled. With another enema, more mucus was expelled mixed with faeces, and the patient gradually recovered. Subsequent attacks of a similar nature, but not so severe, occurred within the next twelve months, usually traceable to cold or indiscretion of diet, but I have had no further opportunity of seeing him. I have recently communicated with his father, who informs me that these attacks still go on, perhaps three or four in a year, and there is often much mucus in the stools. His father also tells me that he used to suffer in precisely the same way when between 20 and 30 years of age, and his youngest sister (the boy's aunt) was similarly affected. The boy's grandfather "died of some bowel complaint, which the doctor did not understand, though he said there was no tumour". The age of this patient, the acuteness of the attack, and the history of Mucous Colitis in several members of the family, are all points of much interest.

2. PATHOLOGY OF MUCOUS COLITIS:

Under this heading will be discussed:-

1. Post mortem appearances.

2./

2. Character of the mucus, including

- (a) its appearance to the naked eye,
- (b) microscopic examination and,
- (c) chemical examination.

3. Examination of Blood Films.

1. Post Mortem Appearances:

As the disease is rarely fatal, autopsies have consequently been few, and I have had no opportunity of such personally. I accordingly refer to some of those cases that have been published. Pathological anatomy reveals very little as to the nature of this disease. Only one writer, Wannebroucq, speaks of any deep organic change in the intestinal wall, and one is inclined to think that possibly his case was rather one of a mixed enteritis than a real Mucous Colitis. Even when the disease has existed for a long period, the morbid process shows no more than a very superficial change. But there is one feature which I have never seen recorded, and which was pointed out to me by Dr Coates of Salisbury, though he has no published paper of reference on the subject. He says that at Salisbury, Mucous Colitis is pretty common, and he has incidentally found at one or two post mortem examinations, membranes in situ. He states that though for the most part, they are not adherent to the intestinal/

testinal mucosa, there is usually one little point of attachment, where the membrane may actually require to be torn off to separate it; and, microscopic examination of the membrane at that situation shows a sprouting of the capillaries from the intestinal wall - in short, an attempt at granulation. Though, unfortunately, I cannot make a reference to any printed material on this point, I consider it sufficiently valuable (as supporting a catarrhal view of the disease) to be recorded.

The following post mortem examinations are fairly representative of the results that such autopsies have afforded:- Hale White³⁷ gives two post mortem reports. In one, the colon was found dilated, its walls thin and atrophied, and all the other viscera were healthy. In the other, although membranes were passed shortly before death, very few were found at the post mortem, showing, he infers, that they are passed very soon after they are formed. Personally, I fail to see any proof of this statement.

Woodward³⁸, referring to post mortem appearances in the Chronic Diarrhoea that was so prevalent during the Civil War, says, "The portion of the mucous membrane, which has escaped ulceration is not infrequently/

infrequently coated with the so-called pseudo-membranes or croupous products which are also, though not so frequently, to be observed in cases in which no ulcers exist."

O. Rothmann³⁹ had a case examined post mortem, but nothing abnormal was found in the intestinal tract. This negative result is opposed by the post mortem record which M. Rothmann⁴⁰ gives. He found all the characteristic lesions of a catarrh. The mucous membrane was lined with membranous products and presented quite superficial and purely catarrhal deterioration. Epithelial desquamation was intense, the glands swollen, and on microscopic examination, plugs of mucus were seen penetrating right into them. The membranes were easily separated from the red mucosa.

Edwards⁴¹ examined post mortem the large intestine of a man who died of Chronic Nephritis and purulent basilar meningitis. The ascending colon presented membranous casts and flakes, closely adherent, and of a yellowish white colour. Small pieces of semi-translucent membrane and some solid roundish cords, which run into a clear, colourless jelly, which is almost structureless, are handled only with the greatest difficulty and, when placed in/

in water, become hardly visible. Otherwise, the gut was normal. During life, there were no clinical symptoms except membranes in the stools.

Osler⁴² saw five or six cases where, post mortem, the colon showed membranes or quantities of mucus, and during life there were no clinical symptoms.

Wannebroucq⁴³ noted deep lesions of the mucous membrane, proliferation of connective tissue, and large ulcerations, which, he says, may even go as far as perforation.

J. C. Hemmeter⁴⁴ gives post mortem reports showing the occurrence of Mucous Colitis in genuine enteritis and also cases revealing a perfectly normal condition of the intestinal mucosa.

N. Jagic⁴⁵ found small anomalies in the epithelial layer of the intestinal mucosa, but the changes differed in several respects from these found in genuine enteritis.

Abercromby⁴⁶ had a post mortem which showed the bowel sound, except the mucous membrane of the colon. The mucous membrane contained white spots, some larger than a pinhead. Wright⁴⁷ found papular eruptions in the lower Ileum and colon. Regnal⁴⁸ gives the case of a young ox that passed membranes, but post mortem the bowel was found perfectly normal.

Gaston/

Gaston-Lyon⁴⁹ has seen only very minute lesions of the mucous membrane and partial desquamation of the epithelium and some alteration of the glands. His observation is therefore analogous to that of M. Rothemann. Professor Sutherland of Dundee informs me in a letter on the 29th March, 1903, that in two cases of Typhoid Fever and Cancer of the Sigmoid respectively, which came under his observation, casts were passed during life. He has often found post mortem, the large intestine containing large quantities of mucous material, the passage of which through the bowel might presumably during life have formed casts. In all cases of the kind, which he has examined microscopically, there has been evidence of catarrh. And, to summarise, the collective evidence of the foregoing post mortem reports, we are justified in concluding that in Mucous Colitis, there is a mild form of catarrh.

2. Character of the Mucus:

(a) Its naked eye appearance. There are many different types of mucus excreted, all of which may be exhibited by the same patient during one attack, or in different attacks. For practical purposes, we may divide the mucus into two classes:-

1. Amorphous. ii. Membraniform.

i. The amorphous form may be nothing more than

a/

a scum or froth, or in small masses like frog's spawn, or viscid and glairous like uncooked white of egg. In other cases, we may have larger masses, like pieces of jelly-fish; or greyish balls, which, in contact with water, separate into fragments of various sizes.

ii. The membraniform type is that which we see in a typical case of Mucous Colitis. There are many varieties of this type. In all of them, the mucus is in a more solid and opaque form, and is passed in coherent masses, which more or less retain their form. We may have a perfect cast of the intestine, varying in length from a few inches to two feet or even more. One of my patients not infrequently passed a cast two feet long. Another very often passed casts from six to ten or twelve inches. As a rule, however, a cast of these dimensions does not remain intact, but becomes broken up. Sometimes, it gets broken up into vermicelli-looking masses, sometimes into small flat segments like tapeworm, or into filaments like threadworms. On other occasions, they appear as rolls or twists of membrane from a few inches to two feet or more in length, showing the effect of the peristaltic action on the intestinal contents. I have seen long strips of/

of membrane like an umbilical cord on a small scale. In a good annular cast, one may actually observe, with a magnifying glass, that it is a complete mould of the inner surface of the bowel, showing even the marking of Lieberkuhn's follicles. The casts may be of the same width as that of the intestine, or smaller, due to contraction after their detachment. Sometimes they are streaked with blood, showing their adhesion to the intestine in one or two places, as already mentioned. At times, as Hale White observes, "the wall is laminated with pieces of faeces between the laminae, showing that they have been laid down successively. The thickness of the wall varies, sometimes being a quarter of an inch thick. The end may be well defined, or shade off into a soft, transparent, gelatinous material." The outer wall is smoother than the inner for obvious reasons. Several authorities are of opinion that the loose glairy forms are the fresh products, whereas the other type of mucus has been lying attached to the intestinal wall for a considerable time. Von Noorden⁵⁰ says that the membraniform mucus, owing to the length of time it has been in the intestine, has become dehydrated and therefore, of a tougher consistence. He is also inclined to believe that this mucus/

mucus is quite different from that seen in ordinary enteritis, that it is a result of nerve irritation, and is more sticky in consistence and more tenacious, in this way accounting for its becoming moulded to its surroundings and acquiring their aspect. The colour of the mucus varies, and doubtless this is due to the colouration of the faeces. It may be white, yellowish or brown, according to the faecal tint.

(b) Microscopic Examination:

I have frequently examined microscopically (using Leishman's stain, or eosine and Methylene blue) casts from patients suffering from this disease, and I find that the cast consists of thickened mucus with occasional broken down epithelial cells, with no nuclei. The mucus is swarming with bacteria, the bacilli coli being in the largest proportion. They are packed in dense masses and also distributed throughout the material. Leucocytes are present, sometimes in considerable numbers - mononuclear, multinuclear and eosinophiles. I have seen the mononuclear and multinucleated cells in a state of active phagocytosis - one can see the bacilli in the bodies of the cells. Sometimes, fibrinous looking threads are to be seen. This personal observation/

servation agrees, for the most part, with accounts I have seen published. Michael Foster⁵¹ and others also mention the presence of phosphates and cholesterol crystals, and occasionally, intestinal sand.

The broken down epithelial cells, according to Nothnagel,⁵² are disintegrated owing to dehydration. Kitagawa attributes it to hyaline degeneration, or to a coagulative necrosis, while Schmidt differs from both of these authorities, in attributing this condition of the cells to infiltration with Fatty Soaps. Dr E. M. Light⁵³ gives an elaborate description of the microscopical examination, which, for the most part, is in accordance with the observations of others.

(c) Chemical Examination:

The only test I have myself employed, is the usual test for albumin - heat and nitric acid - with a positive result, and this agrees with most reports. The most interesting result of chemical examination is that by Dr Leathes who made the following communication to the Pathological Society in November 1901, which he kindly sent me. "The casts are not what is understood by the name mucin at all. They are not soluble in alkali in the way that mucin is, and only after heating with alkali or prolonged treatment/

treatment with alkali in the cold go into solution and then the solution is not precipitated by Acetic Acid. In some cases, it is possible to show absence of proteid reactions from such a solution, making it probable that, when these are obtained, they are due to admixture of impurities.

But, when hydrolysed by mineral acids, they give a solution that reduces copper oxide. I think that probably, the essential material forming the bulk of the casts (in which, however, are very commonly embedded cast off cells as well) is not a proteid, but some derivative of a carbohydrate comparable, perhaps, with such substances as chondroitin, etc."

3. Examination of Blood Films:

Recognising the utility, in many cases of disease, of examining the blood, I have made and examined a few films with the following result. In the majority of my cases, I found the polymorphs diminished in quantity (as compared with the normal standard), the mononuclears usually increased in number, and the eosinophiles always increased. Indeed, one might almost say there was an eosinophilia. I append the records of three cases as examples:-

	Poly- morphs.	Mononuc- lears	Lympho- cytes.	Eosino- philes.
No. 1	54	17	24	5
No. 2	54	12	25.5	7.5
No. 3	51.5	9	32.5	7

3. ETIOLOGY: PATHOGENY.

There is no part of the study of this disease which has given rise to so much controversy as the etiology; and, so far as our present knowledge goes, we cannot yet affirm that an absolutely positive etiology has been established. I shall, at some length, discuss the principal theories that have been advocated. First of all, however, there are a few points on which all authorities are agreed. Women suffer from Mucous Colitis more frequently than men and children, though different authorities vary in their statistics. Of Langenhagen's⁵⁴ cases, 27% to 28% were men. Litten⁵⁴ observed 20% to 25% in men, Kitagawa and Einhorn⁵⁵ 10% in men, and Botten-tuit⁵⁶ about 30% in men. Children, too, though much more rarely, suffer from this disease. Even cases have been reported in newly born children by Lonquet and Ullmann.⁵⁷ I observed the disease in a boy, aged 4 years. The commonest age is between thirty/

thirty and forty-five years. The disease is more often seen in well-to-do people, and is therefore commoner in private, than in hospital practice, and it is seen more often in people living in the town than in the country. Mannaberg, in his hospital clinique⁵⁸ between 1898 and 1900, saw only one case of Mucous Colitis, whereas, at a health resort like Plombieres, where so many of the leisured classes go, medical men see a very large number of such cases. On these three points - sex, age, and class - there is unanimity of opinion. Locality appears to have a certain effect, or, it has at least, been noted that the disease is more prevalent in certain parts. In America, it is very common; Von Noorden had many Russians among his patients: in India, the disease is very often seen, and especially in Assam and parts of Bengal. In this country, it is undoubtedly more rare, but as the disease becomes better known and more recognised, one may anticipate that statistics will really show quite a considerable proportion of cases. There are so many different theories, that it is necessary to take them up separately, and the first, which was long the most universally adopted, is that of Nothnagel. He advocates the view - prominent in German/

German schools, - that there are two separate forms of the disease,

- (a) Enteritis membranacea, and
- (b) Colica Mucosa.

(a) With inflammatory phenomena, the passage of membranes without pain and exhibiting the organic changes of chronic catarrh, the rarer form, and

(b), much more commonly seen, without inflammatory phenomena and characterised by the passage of amorphous mucus with colic pains, and which he considers to be a neurosis of the intestine, of which hypersecretion of mucus is the chief sign.

Mannaberg⁵⁹ agrees with this division, separating Colica Mucosa as a disease sui generis, and he says that though each has a pathogeny peculiar to itself, it is just possible that the processes may occasionally be combined. Membranous Enteritis, he says, has the same pathogeny on the whole, as ordinary catarrh of the large intestine, and may be induced by certain occasional factors, e.g.,

- (a) Habitual constipation, or, more rarely, diarrhoea, dysentery, organic disease of the intestine.
- (b) Drastic purgatives.
- (c) Irritating rectal injections.
- (d) Anthelmintics.
- (c)/

- (e) Gastric diseases.
- (f) Arthritis.
- (g) Lithiasis intestinalis.
- (h) Occasionally quite isolated cases caused by bacteria or autointoxication.

As to its pathological anatomy, it, too, is the same as that of enteritis in general. At the Medical Congress in Paris, 1900,⁶⁰ he cited the following authorities who give the disease an organic basis:- Krysinski, Kitagawa, Bruner, Hirsch, etc., all of whom practically came to this conclusion on account of the epithelial desquamation, the round cells, bacteria, and the quantity of mucus observed in the dejecta (Bruner⁶¹ says he regards Mucous Colitis as a special form of enteritis. The presence of mucus, altered epithelium, etc., negatives the idea of a pure neurosis.) As to Mucous Colic, Mannaberg ascribes to it a special pathology peculiar to itself - a local manifestation in the intestine of a general neurosis; and in those exceptional cases where there is no underlying general neurosis, he regards the morbid state as a monosymptomatic neurosis of the intestine; and, as an argument in favour of this, he states that where it has been possible to make an examination either on the living or dead body, no appreciable lesion of the Intestinal/

al mucosa has been found. In his address⁶² he further quoted several authorities who regard the disease as a secretory neurosis without anatomical cause. Of these, Potain's views are worthy of note. He avers that the disease cannot be looked upon as a Colitis on the strength of the clinical symptoms, especially the presence of constipation instead of diarrhoea (though he admits that one might speak of a Colite seche), the paroxysms of pain (almost pseudo-anginous) and the frequently observed tachycardia. Vanni was quoted as having obtained negative results from the injection of cultures into the bowels of animals, and he calls the disease a "myo-angio-neurosis cum hypersecretione mucosa". Vanni has raised strong objections to the theory that constipation is the direct cause of the excessive mucous production,

- (a) Because, when small hardened balls of faeces are found in the membranes, at these very places, the thickness of the mucus is much smaller.
- (b) Because membranes have been found post-mortem, apart from any faeces at all, and
- (c) In Enterostenosis from an organic cause in the bowel, immediately above the stenosis, through which masses of faeces are pushed for a long time, we get catarrh and enlargement of the mucous membrane, but scarcely ever do we see membranes.

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Boas also makes a separation between membranous colitis and colica mucosa; but he differs from Nothnagel in regarding the former as the more frequent, and he accepts intermediate forms between the two. He refers, too, to an artificial form of membranous colitis, which may be induced in persons who are subjects of colitis, but not in healthy individuals, by astringent injections, especially Tannin. He, however, is of opinion that Mucous Colitis is not a symptom of hysteria or neurasthenia, but essentially a symptom of constipation, for it appears as soon as obstinate constipation is once fully established and disappears as soon as the constipation is relieved. ⁶⁴ Von Leube to a certain extent, accepts the view of Nothnagel, but he maintains that in cases where catarrh is present, the formation of membrane is without doubt dependent on some nervous affection - that there is, in short, also a secretory neurosis of the bowel. He does not believe that chronic catarrh is sufficient by itself to explain the formation of membranes in the bowel.

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Westphalen is of opinion that Nothnagel's etiological division is untenable, and that the formation of the membrane is in all cases due to nervous hypersecretion of mucus. In an uncomplicated case, large quantities of amorphous mucus are found/

poured out; when spastic conditions of the bowel are present, the mucus is compressed into straw-like masses; and, if these masses are evacuated with violent pain, then we must assume that a sensory neurosis coexists. If a genuine catarrh coexist, the excessive production of mucus is due, not to the catarrh, but to the neurosis. Mathieu⁶⁶ believes that mucous Colic and Mucous Colitis are one disease, and that it occurs in individuals who are predisposed by a pre-existing neuropathic condition. The colitis tends to aggravate this neurosis, localising it in the abdomen, and the local neurosis, induces hyperaesthesia of the walls of the large intestine and disorders of its motility. The general and local conditions very often react on each other, reciprocally aggravating each other, and subsequent treatment cannot be totally successful, unless measures are taken to counteract both these elements. He also ascribes to 'arthritism' along with the neurotic temperament, a share in predisposing to this disease. Langenhagen's⁶⁷ theory is adopted by many Continental physicians. Briefly expressed, it is that:-

1. The neuro-arthritic diathesis predisposes to intestinal atony, which is the cause of the disease/

ease; and that this atony brings on habitual persistent constipation, and the consequent irritation of the mucous membrane of the colon and the hypersecretion of mucus in this precise sequence.

2. That Mucous Colitis once created, increases the pre-existing nervous temperament, and that, as the intestinal condition improves under well directed treatment, the neurasthenic condition is also ameliorated.

3. That though the neuro-arthritic diathesis is alone sufficient for the evolution of the disease, acute enteritis, especially dysenteric, may be followed by Mucous Colitis and,

4. That genital manifestations in neuro-arthritic women act accessorially in the same direction.

Von Noorden⁶⁸ discusses very exhaustively, the etiology of the disease, and his remarks summarise very ably the more modern views of the controversy. He is apparently a qualified disciple of Nothnagel, accepting his two divisions of Colica Mucosa and Enteritis Membranacea; but ascribing, in contradistinction to Nothnagel, the role of the former the vast majority of cases. He admits that the disease may actually be observed in cases of genuine enteritis, but I think one is justified in inferring/

ing, at least, that in his view, the neurotic element must also be present. He, however, believes that we must look to certain morbid changes in the secretion of mucus in the intestine as playing an important part in the genesis of the disease; and his theory is expressed thus, that "neither constipation alone nor neurasthenia alone, nor the common combination of these states, can produce Colica Mucosa unless at the same time, there is some involvement of the nervous apparatus that governs the secretion of mucus in the large intestine, and this, in short, is a secretory neurosis." While admitting that constipation must be kept clearly in view, he separates himself very distinctly from Boas, who credits constipation with being the cause of the disease. In favour of his position on this point, he argues that the vast majority of cases of chronic constipation do not develop the disease, even where hysteria and neurasthenia are also in evidence, and affirms that in addition to these, we must have the "secretory neurosis". His hypothetical description of the mechanism of the attacks of the disease, is a very interesting one and may best be alluded to here. He thinks that possibly the secretion of mucus takes place/

place under the stimulus of nervous irritation, that this mucus is abnormal in its character, being very sticky and with a great tendency to adhere to the mucosa, and to accumulate when it is produced; and that both faeces and mucus are subjected to a great withdrawal of water, the mucus thereby losing its elasticity and mobility, while its plasticity and stickiness are increased. The intestinal wall has accordingly to undergo violent contractions, usually accompanied with pain, in order to expel its contents.

Ewald, in the discussion that followed the papers read on Mucous Colitis at the Medical Congress in Paris, 1900, gave a very concise summary of his views. He believes there are two groups of cases of Mucous Colitis:-

1. One depending on Catarrh, and
2. The other with an entirely neuropathic origin.

But apart from their genesis, there is not one single difference between the two forms. He does not believe that constipation is the cause of the affection, because in innumerable cases of constipation, there is no Mucous Colitis, and, on the contrary, the disease is sometimes accompanied, not by constipation, but by diarrhoea.

Among/

Among recent French writers, no one has given a more elaborate study of Mucous Colitis than Gaston-Lyon⁶⁹ and his description of the pathogeny of the disease cannot be omitted. His view is that, under the sole influence of the neuro-arthritic temperament, there is produced atony of the intestine, which is the direct cause of the disease, bringing on in succession the constipation, the irritation of the Intestine, the mucous hypersecretion, the nervous manifestations or their increase and other general phenomena, as gastric troubles, abdominal ptoses, etc.

It is impossible to enumerate all the views that have from time to time been advanced, but those I have mentioned are probably the most important Continental opinions. Opinion in our own country is equally divided - some authorities recognising the disease as a catarrh of the colon - others classifying it as a secretory neurosis, while others again would ascribe to it a microbial origin; but our literature is as yet only scanty. In the absence of positive facts, each observer is perhaps meanwhile, entitled to his own hypothesis. From a careful study of my own cases, including the results of microscopical examination and examination of blood/

blood films, I am inclined to offer the theory that the disease may be due to a specific infection, probably by one of the coli group. This opinion, I think, is favoured by the persistence and specific character of the clinical symptoms and the absence of gross pathological lesions in fatal cases. To prove this, would require plate cultivations and separation of the various colonies; and even then, it would be practically impossible to prove it by direct experiment. There is probably defective elimination of toxic products in which the Bacilli Coli thrive. Judging from my microscopical work, I believe the process is a local irritative one, the leucocytes being in many cases actively phagocytic. The examination of blood films also favours the bacterial view. We find the mononuclears and eosinophiles usually increased, and this is in accordance with the present theory as to the functions of these cells, which are supposed to have a special preference for the bacteria of chronic disease (Grunbaum's Goulstonian Lectures in B.M.J., Mar. 21 and 28, 1903.) Is it not possible, too, that the intestinal glands, to protect themselves from this local irritation, secrete an abundant quantity of mucus at first more fluid, and then more viscid/

viscid, forming a coating all round the colon? If we look to other organs, we find analogous processes. Take, for example, the irritation of a foreign body in the eye. At first, there is a copious watery secretion of lachrymal fluid, giving place eventually to the more viscid sticky material. Or again, we see the same taking place when an irritant like an acid is introduced into the mouth - at first, hypersecretion of watery buccal saliva followed by a more viscid secretion; and examples might be multiplied.

Further, I am inclined to think that, of course, the resistive power of the patient must be decreased for the development of the disease, and, in a large majority of cases, I attribute this especially to the arthritic, and sometimes to the neuro-arthritic diathesis. The neurotic element, though one cannot possibly eliminate it, however, I would make in most cases, not a prime factor, but a sequela or symptom, though an early one, and in the later stages of the disease, a very marked one. We know well that rectal and colonic diseases and irritations (and, in fact, all abdominal diseases) have a marked depressing effect upon the nervous system; and it is in this light that I regard the neurotic and neurasthenic/

thenic developments. The catarrhal element, on the other hand, (never developing actually the stages of ulceration and suppuration), which so many relegate to quite a secondary place, and which some authorities exclude altogether, seems to me of much more importance, and I would be inclined to assert its presence almost invariably, though not necessarily manifesting itself continuously - sometimes only intermittently - by the secretion of mucus. Though, as already mentioned, I ascribe to the arthritic diathesis, the chief place as a predisposing agent, I should also state that the resistive power of the patient may be lowered by attacks of certain intestinal affections, and especially dysentery and acute enteritis. I would also refer to heredity, which has been very conspicuous in some of my cases, and to which reference is not often made by writers on the subject. I, of course, do not grant the direct transmission of the disease, but the hereditary antecedents of arthritis are interesting in a secondary sense. For example, in one of my cases, the patient's sister, niece and nephew were all affected with Mucous Colitis, typically developed. In another, the father, uncle and aunt were similarly affected; and in all of these, the arthritic diathesis was marked. There is still another/

another observation I have made, which one of my patients emphasised. This patient passed membranous casts without any appreciable pain, but she told me that, before examining the motion, she could invariably say when one of these casts, or a quantity of mucus was present, by a peculiar and most offensive odour, and she had frequently called the attention of her nurse to this phenomenon. I find a similar experience mentioned by Dr S. O. Habershon.⁷⁰ This is not sufficient proof of a gaseous etiological factor, but it is of interest. Other patients have at times complained of offensive odour, but on examination of the stools on such occasions, I found them light coloured, and I accordingly ascribed the odour to torpidity of the liver.

Mucous Colic - as so described - I have seen very rarely, but I am inclined to regard it as a mere variant of Mucous Colitis, which has periods of amelioration and exacerbation, both as regards pain and the amount of mucus passed per rectum.

4. DIAGNOSIS:

The diagnosis of the majority of cases of Mucous Colitis does not prevent great difficulties, though it is possible that, not only in the acute paroxysmal/

paroxysmal crises, but also in the chronic forms, errors may arise. I have already mentioned elsewhere the importance of realising the danger of mistaking for the real disease, the concomitant conditions and accessory symptoms: and it is necessary to keep in mind the presence of membranes or mucous masses in the stools as a valuable diagnostic feature of Mucous Colitis. In all probability, the patient will neglect to mention the occurrence of these, for he may have failed to notice them, or he may have wrongly supposed them to be worms, and the physician should therefore not be led away by this statement, for, if he prescribe anthelmintics, he will find that such treatment tends to aggravate rather than ameliorate the disease. It is absolutely essential for the medical man himself to see the excreta and to examine the faeces. Sometimes, it is necessary to give an enema, as this often brings away membrane, or mucus lying in the intestine. If the naked eye examination does not effectually clear up the diagnosis, in all such doubtful cases, the microscope is a great aid, for not only have the membranes, etc., been mistaken for taenia, but cases are recorded where these have been taken for hydatid membranes, mucous shreds expelled in intussusception, /

intussusception, thrush patches, undigested pieces of food, and even membranes discharged per rectum in a case of croup. Further, as Boas⁷¹ points out, intestinal irrigation as a diagnostic will show that "the membranous formation does not appear occasionally or suddenly, but that smaller or larger masses of mucus or tubular formations may often be identified during intervals between the attacks." This writer is most emphatic in recommending this method of diagnosis, and he advises that in all obscure cases of intestinal trouble, it is well to adopt this plan, sometimes continuing these methodical intestinal injections for a considerable period.

During acute paroxysmal attacks, diagnosis is sometimes difficult. Biliary and Renal Colic, Acute intestinal obstruction, appendicitis, etca, all simulate this disease, and it is only by a careful history of the attack, a minute interrogation as to previous symptoms, and an accurate examination of the local conditions that one can exclude these other disease. In Appendicitis, for example, we are guided largely by the temperature, and the localisation of the pain at M'Burney's point. To diagnose Mucous Colitis from Typhoid Fever, we rely on the temperature chart, the presence of absence of the Typhoid rash, the character of the stools, and the positive or negative result obtained from Widal's test.

In a patient who is much emaciated or even cachectic, one may easily suspect malignant disease of the colon, and it is, of course, possible that these may coexist; but when no tumour can be felt, the existence of visible and palpable intestinal contraction of certain parts of the colon during the paroxysms is a sign of much importance. I need not do more than repeat that our attention may be misdirected from the real disease to the gastric symptoms, and it is not always an easy matter to differentiate dilatation of the transverse colon from a similar condition of the stomach. The nervous troubles, the reflex disturbances and the uterine lesions when present, can likewise mask the presence of Mucous Colitis. Among records of cases of Mucous Colitis, interesting from the diagnostic point of view, I would briefly refer to two. The first is described by Thoyer-Rozat.⁷³ A primipara in the seventh month of pregnancy was seized with abdominal pain, the uterus being felt to contract at each pain. Rest was ordered, belladonna by the mouth and opium by the rectum were administered. Next day, it was found that the pains continued, the uterus did not contract at each pain, but above it, along the tract of the colon, lay/

lay a painful tender area. A purgative was given and was followed by a very painful action of the bowels with abundant evacuation of mucous casts. Gradually, the intestinal mischief subsided and pregnancy continued till the full term.

The other case⁷⁴ is perhaps still more interesting and shows the errors in treatment that faulty diagnosis may cause. The patient was supposed to suffer from Mucous Colitis; and, as medical treatment failed to relieve the condition, right inguinal colotomy was under consideration. The sudden appearance of a swelling on the back close to the spine, with a fatal termination a few hours afterwards, prevented the operation, and the case turned out to be one of Aneurism of the abdominal aorta pointing posteriorly, and causing death by internal rupture.

5. PROGNOSIS:

The prognosis is favourable. Only a very few cases of Mucous Colitis have been known to terminate fatally, and these have been complicated by other affections. But the disease is undoubtedly a very chronic one, and much patience is required on the part of both physician and patient. If/

If the case is recognised early, appropriate treatment with strict attention to prescribed diet will probably effect a cure. In thoroughly established cases, which have been progressing for a long period, the prognosis as to complete recovery is much more guarded, but effectual cure may result and most certainly, amelioration of the symptoms can be anticipated, if the patient has the enduring perseverance to carry out strictly the treatment prescribed. In chronic cases, relapses are almost inevitable, and where neurasthenic symptoms are much in evidence, the treatment is much more troublesome.

TREATMENT:

One cannot emphasize too much the importance of early diagnosis, for the sooner the disease is recognised, the more easily is it removed; whereas, if therapeutic measures are not employed till late in the course of Mucous Colitis, not only is the local intestinal trouble much more difficult to check, but the general debility and other complications, which so commonly arise, make treatment no light task. The treatment one adopts, to a certain extent, depends on the etiological view he holds, and it is undoubtedly true that most benefit is/

is derived by attention to those dietetic principles, ^{and} by the use of those medicinal and other remedies, which have for their object, the alleviation of catarrhal condition, and by the employment of antiseptic or bactericidal agents. Before entering on a detailed description of treatment, it may be well to briefly summarise what personal observation has proved to be most beneficial. The patient should wear good flannel or woollen under-garments, preferably of thick Jaeger material and woollen socks or stockings. Moderate outdoor exercise should be taken regularly, such as walking, moderate cycling and games, such as golf, which do not necessitate any violent movements. In short, attention to general hygiene is of the utmost importance. The foods should be of a bland, non-irritating kind; alcohol, in all forms, should be strictly excluded; and meals should be taken at regular intervals. The bowels are to be evacuated daily by an intelligent use of enemata, suitable purgatives - never of a drastic nature - and massage properly employed. Petroleum (whose action is described at page 82) and internal antiseptics as Salol, are of much value, and irrigation of the intestine with saline or antiseptic/

septic solutions produces good results. Constitutional treatment, where indicated as in gouty subjects, must not be neglected, and accessory or concomitant conditions, as dyspepsia, etc., must be constantly attended to and appropriately treated. A change to the country, to the seaside, a sea voyage in some cases, or occasional residence at a mineral spa, where the proper hydrotherapy for this disease is carried out, is often of distinct value, when practicable.

In acute exacerbation, most benefit is derived from rest in bed, hot local applications, milk diet and appropriate drugs, such as belladonna, etc., and hot enemata. In intractable cases, electricity is worth a trial, and colotomy has proved in several cases, to be the only remedy.

Dietetic Treatment:

Though there is no doubt that constipation is one of the chief difficulties to be overcome, experience shows that the dietary most suitable to Mucous Colitis, is precisely the opposite of that usually employed for constipation. We must therefore exclude all those articles of food which tend to leave behind an indigestible solid residue, and which therefore, tend to irritate the colon. At the same time, we must strive to avoid reducing the diet/

diet of our patients too much, because an extravagant limitation, excluding too many of the efficient elements of food, will naturally be found to impoverish the strength and produce disastrous results. The food should be well cooked, so that the patient, whose appetite is often feeble, is tempted to make an effort to eat. The meals, too, should be at regular times, and little casual refreshments between meals should be avoided. This system of feeding with bland, non-irritating, and easily digested food, is the more commonly adopted and that which, in all my cases, I have found most beneficial; but several authorities, as Von Noorden,⁷⁵ Einhorn, Hemmeter, Boas, etc., recommend the more orthodox constipation diet, i.e., a coarse laxative one, containing a large proportion of indigestible residue, and producing more copious evacuations of the bowel. Westphalen⁷⁶ and Von Noorden believe that the best treatment, as soon as a case comes under medical supervision, is to prescribe at once, a coarse laxative diet; and, if the patient has been living on a bland non-irritating diet, to make the substitution immediately. Boas, Einhorn, etc., on the other hand, though agreeing with Von Noorden, that a diet rich in cellulose, etc., is the preferable one, recommend that the transition be made gradually. Supporters of the coarse laxative/

tive regimen, advise it to be continued for a period lasting from three to five weeks, by which time, they hold, that usually the bowels are acting regularly, the return to the dietary of ordinary life being very gradual, and in this way, relapses are not nearly so common as after bland dietetic treatment. My own experience is in agreement with that of many writers, and it is this, that such a coarse diet is usually not tolerated, and is one of the most potent factors in producing pains, increasing the tendency to spasm, provoking secretory irritation, in short, aggravating the catarrh and in exciting irregular intestinal muscular action. Of course, there can be no doubt that such a diet as is here recommended rather favours the constipation, and we must overcome this by other means, to be mentioned later. We shall now examine more minutely, the different kinds of food that are permissible, and those that are contraindicated.

Milk:-

Where milk is tolerated, it can be taken in moderate quantities, and in acute paroxysmal attacks, it is one of the main things to be relied on. It is sometimes better taken in peptonised form, or prepared in dishes, or with eggs. Most patients/

patients, who assert their inability to take milk, can be educated to it, if it is given for a time in very small quantities only, with or without the addition of a little mineral water.

Eggs:-

Almost in any form are allowable, but if boiled, they should be soft, not hard. They may be poached, scrambled or better, as egg flip, but not prepared in any greasy way.

Fresh fish:-

Especially of the lighter and more easily digested kinds, such as sole, is permissible. Fish is best prepared by boiling or steaming, and all fatty parts should be removed.

Vegetables:-

Are best given in puree. Only non-fibrous vegetables are admitted. Potatoes, if given at all, should be allowed only in very small quantity, and passed through a sieve. The dry pulses, as peas, lentils, etc., are permissible. Green vegetables in very small quantity and mashed very fine, may be taken by some patients, but, as a rule, they are better excluded, for they are apt to pass on/

on to the intestine undigested.

Fruit:-

Should be cooked, and the skins, seeds, etc., rejected. Very little sugar should be taken with the fruit. Froussard⁷⁷ allows a more liberal supply of fruit.

All Meats should be very finely minced. Very lean roast and boiled beef, or grilled, may be allowed. Lamb and mutton similarly prepared, sweetbreads, brains, palates, chicken, pigeon, etc., are permissible. A very moderate quantity of very lean ham may also be taken.

Bread:-

Must be taken very moderately, and either stale or toasted dry, or in the form of rusks or biscuits.

Water may be taken by all freely, or slightly mineralised table water. Alcohol in all its forms should be avoided. Where milk is not tolerated, warm infusions of Chamomile, orange leaves, etc., are recommended by some, especially given after meals in dilatation of the stomach or dyspepsia.

Tea, Coffee, and Cocoa may be taken in moderate allowance.

Foods not permissible:-

Fats, green vegetables, as a rule, such as cabbage, asparagus, etc., salads, not allowable. The skin, gristle, fat and fibrous parts of meat should be rejected. All meats with tough or close flesh are excluded, and so are pork, kidneys, liver, goose, game, etc. Spiced sauces and rich gravies should not be indulged in. We must also prohibit salmon, eels, shellfish, or any form of rich or indigestible fish, and all fried fish. No raw fruit should be taken; pastry and sweets are forbidden; and alcoholic drinks are to be rigorously excluded. In this disease, it is impossible to lay down any fixed scheme of diet. Variety on the lines mentioned, with attention to any idiosyncrasies, is a great principle in the dietetic treatment. We must ever keep in mind that not only is the digestive system to be studied, but that the general nutrition is to be improved; and therefore, it is only by a careful study of each individual case that a proper choice of foods and a reasonable amount of food can be selected.

The use of enemata is much recommended in the treatment of Mucous Colitis. As Albert Mathieu^{77a} points out, enemata have a threefold action,

(a)/

- (a) They soothe the painful and spasmodic irritation of the Intestine.
- (b) They bring about the evacuation of accumulated faeces.
- (c) They act as a mechanical antiseptic, and so produce a relative asepsis of the bowel.

In the treatment of Mucous Colitis, enemata of various kinds are universally employed. Some use enemata of plain boiled water with or without the addition of a mild antiseptic such as borax, etc., while others recommend the incorporation of various medicinal substances, as Ichthyol, Silver Nitrate, etc. The simple enemata act in a mechanical way, removing the mucous excess, washing the lining of the intestine, and thus re-establishing the normal function of secretion and absorption, and also stimulating the muscular contractility of the intestine by the contact of the hot liquid. There can be no doubt of the utility of such a procedure. The medicinal enemata are supposed to have the further action of an antiseptic ~~ad~~ressing to the intestinal wall. The large enemata of boiled water, or with a weak antiseptic, such as borax (in the strength of one drachm to a pint), are to be given with certain precautions. The important point is that they must be administered at a low pressure, and injected/

injected slowly at a temperature of about 104° F., -
 or even higher where there is no spasm - in quan-
 tities of three to five pints. Their administra-
 tion at too high a pressure produces intestinal
 spasm, and it has been demonstrated that the liquid
 does not reach far up the intestine. The patient
 lies on his back in the horizontal position, with
 the limbs relaxed, the liquid being placed at such
 a height as to make only moderate pressure, the
 rectal end of the douche being fitted with a long
 or soft matter tube
 cannula for the introduction of the fluid as high
 up as possible. Langenhagen⁷⁸ suggests that the
 enema may advantageously be administered in two
 parts, - the first of one quart or so, and after
 its evacuation, the second, of a pint or more,
 which should be retained as long as possible. It
 is advisable that the patient should have the left
 hip at this stage, elevated a little, so that he
 lies more on his right side, and thus there is a
 better chance of the liquid passing to the trans-
 verse colon and perhaps to the ascending colon.
 Fleiner⁷⁹ administers enemata of olive or sweet
 almond oil, which are supposed to protect the
 mucous membrane from the irritation of the scybalae,
 in combination with the large enemata at low pres-
 sure. /

sure. An enema of 100 to 150 grammes of oil is administered at night, and if possible, retained all night. In the morning, a large enema is administered in the manner described. As to the frequency of these enemata, at first, they should be employed daily for perhaps six or seven days, then at intervals of two days (the large enema in the morning being replaced by a dose of castor oil) and afterwards at intervals of three or four days. By and bye, it will be found that once a week is often enough. The above methods are those employed on the Continent, and are attended with good results. Their practical application at the patient's own house, is perfectly simple, though it is unfortunately a proceeding that is troublesome to the patient, and one requiring the exercise of much perseverance. I have also used irrigation of the colon with normal saline solution (as referred to in the history of the first case I describe at page 29) described by Thomson⁸⁰ though I have not employed the resorcin in these enemata, which he mentions.

Other substances are employed in enemata. Lyon⁸¹ adds 5 gr. of Sod. Bicarb. and 1 gr. of Sod. Salicyl. to 1 litre of water, or 4 to 5 gr. Chlorate/

ate of Soda. With regard to Silver Nitrate, it is most useful in dysenteric cases (preceding it with an enema of boiled water), in which I have also employed with advantage, rectal injections of Hazeline (half an ounce or more to 6 oz. of water.)

There is another form of injection which I have used and which has appeared to give beneficial results, viz., rectal injections twice or thrice a week of 5% Solution of the Grape Juice of Commerce. It was suggested to me by a statement of Dr Reynold, Health Commissioner, in his report to the Health Department of Chicago for the week ending January 15th, 1903, who states that such a solution (in strength of 1% to 5%) is destructive to some micro-organisms, and especially to those of the Coli group.

Medicinal Treatment:-

Enemata, though of the greatest advantage and quite indispensable, are attended with certain disadvantages, if employed for too long a period, inasmuch as they tend to paralyse the lower part of the intestine, to abolish or obliterate the premonitory sensation of defaecation, and generally to aggravate the atony of the intestine and the consequent constipation. For this reason, after a reasonable course of enemata, or in conjunction with/

with such treatment, we must try, if possible, to regulate the bowels with suitable purgatives, always avoiding those of a drastic or irritating nature. Personally, I limit myself to the use of two, viz., Castor oil and salines. Castor oil undoubtedly is to be preferred before all others. I have already referred to its employment alternating with the enemata. It may be used regularly, when tolerated, every second or third morning before breakfast in doses of one or two teaspoonfuls. Thomson prescribes it in small alterative doses of half to one teaspoonful before or after meals, and continues it, if it does not cause dyspeptic symptoms. Where castor oil cannot be taken, Salines should be employed. They should be administered in small doses and, if necessary, once or twice a day. Sulphate of Magnesia, Sulphate of Soda, Soda Tartarata are those I have used, substituting sometimes a course of certain mineral waters, as Apenta, etc. Lyon⁸² recommends a mixture of Cream of Tartar, sulphur and magnesia, 20 grs. of each. Compound Liquorice Powder, linseed (G. Sec) and a host of other purgatives, such as podophyllin and belladonna, cascara sagrada, small doses of calomel, etc., have been lauded, but it is impossible to enumerate them.

One/

One must be guided very much by the effect observed in each individual case, ever keeping in mind that the best is that which succeeds in promoting daily evacuation of the bowels, in accordance with the principles laid down.

The next group of medicinal substances are those for relieving pain. In those cases, where there is constant pain or discomfort, Langenhagen's⁸³ method of applying layers of heated cotton wool, covered with oiled skin and kept in place with a broad band of flannel fastened round the body - applied in the evening and worn all night - is very good. But in more severe cases, as in acute exacerbations, it is necessary to put the patient to bed, ordering absolute rest with hot fomentations, previously smearing over the abdomen, some belladonna and glycerine. Hot baths and hot water enemata at low pressure have also sedative effect. Where hot applications fail to give relief, cold compresses may be tried, but the former are usually more beneficial. Internally, belladonna (in pill or tincture) is of great service, and indirectly by relieving pain, it often relieves the constipation. Chlorodyne, I also find most useful, or Cannabis Indica suspended in gum mixture. One naturally hesitates/

hesitates to use opium or its derivatives in a condition like this, where these attacks of pain are so common, lest a habit be established and also on account of their constipating effect; but where the pain is very acute and cannot be removed by other means, we must fall back on them. Morphia hypodermically and preferably with atropine, is sometimes the only remedy sufficient to allay the pain; or one may use suppositories of opium and belladonna; Codeia, Nepenthes, etc., have all been employed, and doubtless have their special advantages in some cases.

In the treatment of mucous colitis, there are three drugs which I would specially recommend. The first is the group of internal antiseptics, such as Salol, Salicylate of Bismuth, Salicylate of Soda, etc., which produce good results in mild and severe cases by their constitutional effect, their influence in relieving pain, and their antiseptic action. The second is Bismuth, which I prescribe in the form of Bismuth Carbonate, not suspended with tragacantha or gum, but simply with glycerine, giving directions to shake the mixture well before using. And the third is Petroleum, which I have employed with very excellent results. I use pure, odourless/

less, tasteless petroleum which is well tolerated, administered in tablespoonful doses thrice daily after meals. An article on "Petroleum in the treatment of Phthisis"⁸⁴ gives much information as to its action. It certainly is a very excellent lubricant for the intestines, and by coating the wall of the intestine, it acts mechanically as a germicidal agent, "cutting off from the micro-organisms the avenues for taking in air and nourishment, and so causing their starvation."

Other symptoms besides pain have to be treated, as they present themselves. I may refer to these briefly. The nervous symptoms are usually most obstinate. It is in these cases where treatment at mineral spas is most beneficial, hydrotherapy and attention to the general hygiene being of much importance. Residence at such places has its good effects, not only from the use of the waters in drinking and bathing, but also from the change of air, regular daily exercise, and the special means of intestinal irrigation already described and most beneficial when efficiently carried out. Drugs, as bromides, valerianates, etc., though at times useful, are quite secondary and/

and unreliable in their action. The gastric troubles usually are very prominent and must be treated with close attention to the alimentary regime, and when necessary, with gastric sedatives, or other medicinal agents as they are indicated, always bearing in mind that regulation of the bowels not only has its effect on the intestinal condition, but also on that of the stomach. It is outside the limits of this paper to discuss the treatment of the concomitant conditions so often found in Mucous Colitis, and it is unnecessary to repeat that one must always be on the lookout for these, and correct them when it is possible, thus maintaining the highest possible standard of healthy and efficient performance of all the physical functions.

There are two other methods of treatment still to be mentioned, before referring to operative procedure. These are massage and electricity. Massage of the abdomen, skilfully applied is of great service. It should be practised at first, very gently, lest it produce painful spasm of the intestine, which soon, however, becomes accustomed to this and relaxes, when the rubbing can be carried out more energetically. Massage should not be employed/

employed in acute paroxysmal crises, or where there are signs of enteritis or subacute peritonitis. Electricity is worth a trial, though, in the only case in which I have employed it, I failed to gain permanent benefit. The High Frequency current was employed for three weeks at a time, as much as 420 milliamperes of current being given, but the good effect was only temporary, lasting for a few hours. Several cases, however, are said to have been much improved by this treatment.

When everything else fails, the operation of colotomy is recommended. This is preferably performed on the right side, as Mucous Colitis may attack the whole colon, and it is therefore wise to make sure that one is well above the disease. Golding-Bird and Hale White⁸⁵ were among the first to employ this treatment, their statistics showing that the operation is either curative, or affords marked relief for a long time. The establishment of an artificial anus, which is kept open for a considerable time - from several months to a year or two, if necessary - gives complete rest to the colon, which can be thoroughly washed out from above, though the two authorities, just mentioned, say that irrigation is harmful in these cases.

After/

After a reasonable time, the artificial anus may be closed. When all other means have failed, there is certainly justification for this operation, as it is the only means left of relieving a condition, which eventually impoverishes the nutrition of the whole body, and debilitates both physical and mental energy.

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